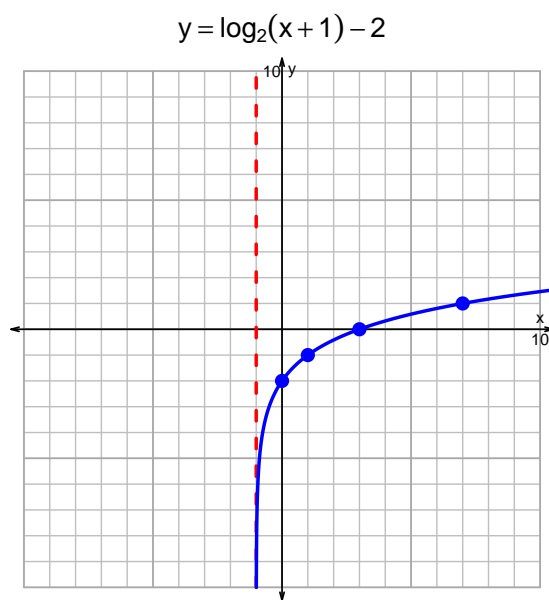
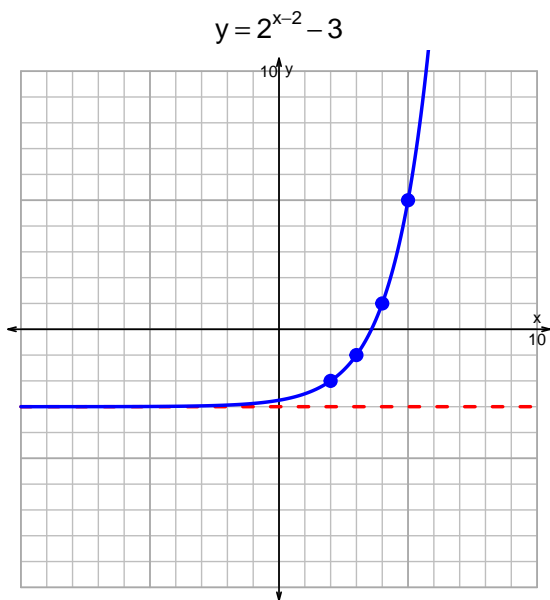


Name: _____

Date: _____

s18: EXP LOG (SLTN v365)

1. (10 pts) Graph $y = 2^{x-2} - 3$ and $y = \log_2(x+1) - 2$ on the grids below. Also, draw any asymptotes with dashed lines.



Somewhat useful hint: $2^3 = 8$, and thus $\log_2(8) = 3$.

2. (10 pts) Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression. Please do not do any arithmetic; just move numbers around.

$$29 = \left(\frac{4}{5}\right) \cdot 10^{-3t/7}$$

Divide both sides by $\frac{4}{5}$.

$$\frac{29 \cdot 5}{4} = 10^{-3t/7}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{29 \cdot 5}{4} \right) = \frac{-3t}{7}$$

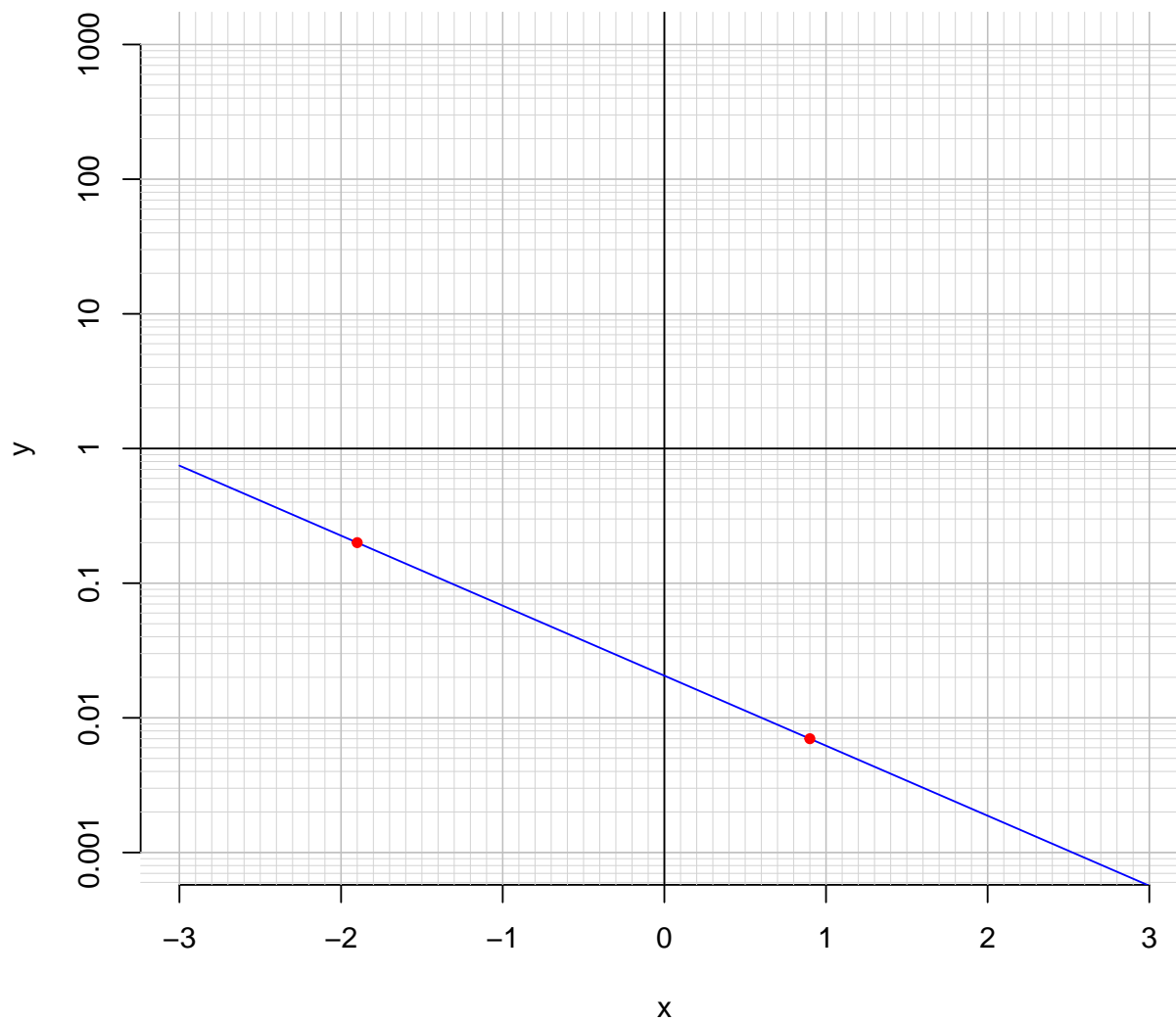
Divide both sides by $\frac{-3}{7}$.

$$\frac{-7}{3} \cdot \log_{10} \left(\frac{29 \cdot 5}{4} \right) = t$$

Switch sides.

$$t = \frac{-7}{3} \cdot \log_{10} \left(\frac{29 \cdot 5}{4} \right)$$

3. (10 pts) An exponential function $f(x) = 0.0206 \cdot e^{-1.2x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(0.9)$.

$$f(0.9) = 0.007$$

- b. The inverse function is logarithmic.

$$f^{-1}(x) = \frac{-1}{1.2} \cdot \ln\left(\frac{x}{0.0206}\right)$$

Using the plot above, evaluate $f^{-1}(0.2)$.

$$f^{-1}(0.2) = -1.9$$